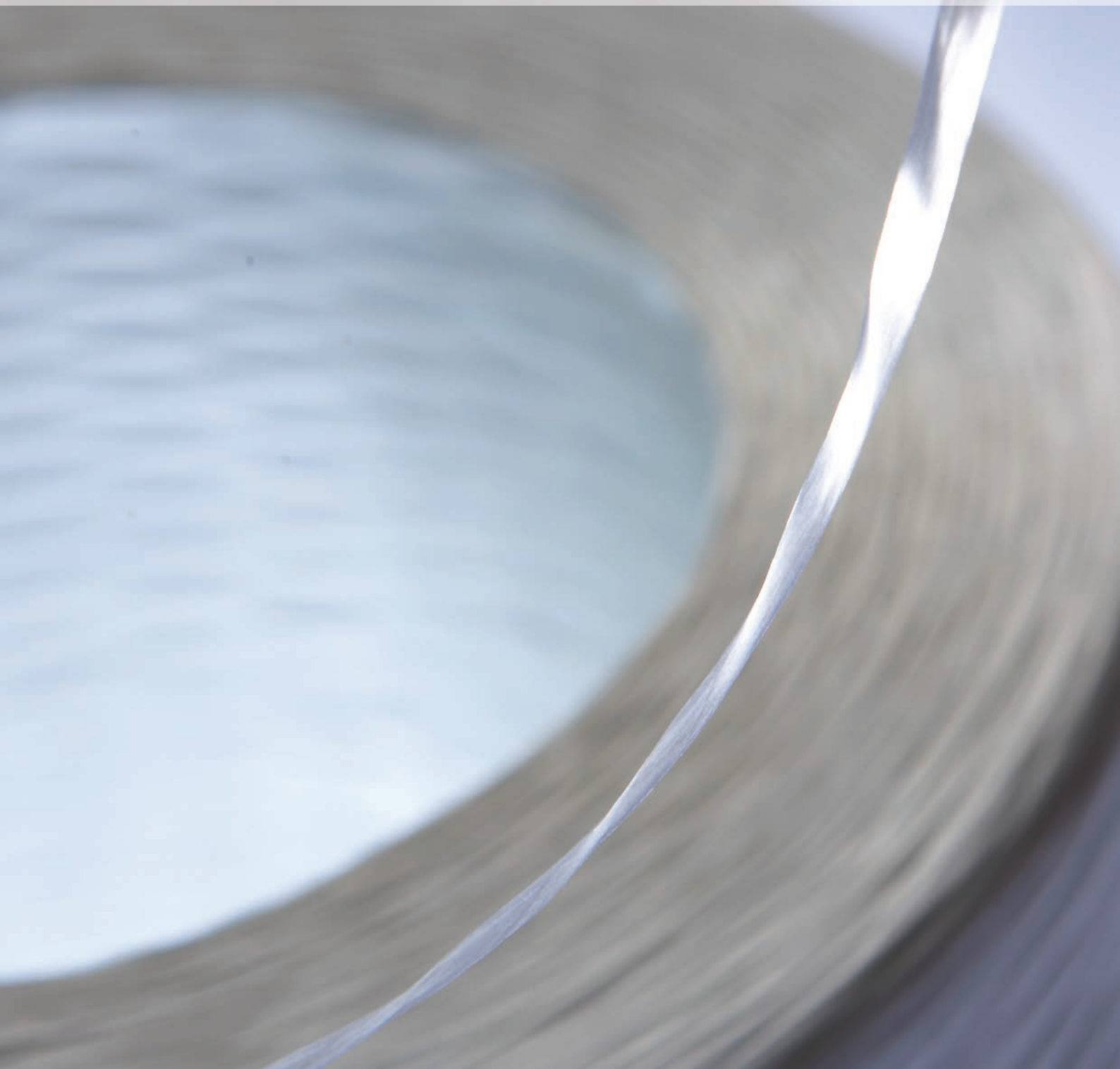
TeleStrand™ Glass Reinforcements

New high performance glass fiber solutions for optical fiber cables

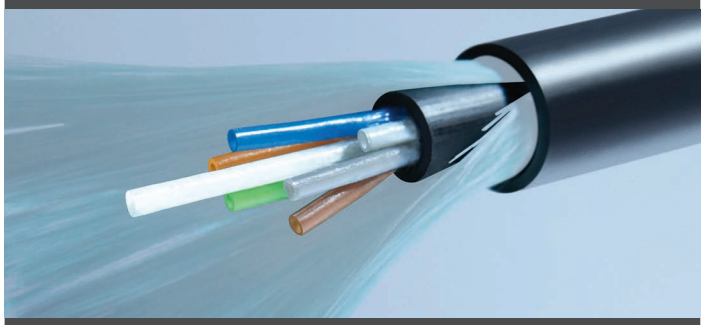


SERVING +17% GROWTH IN TELECOM/FRP OPTICAL FIBER CABLE APPLICATIONS[1]

- Digital India initiative: broadband highways, mobile connectivity everywhere, public internet access program and e-governance amongst others
- Composite material is helping optical fiber cable (OFC) requirements including tensile strength, crush resistance, abrasion and water protection, anti-twist and protection from excess bending
- Composite rods are optimum strength-to-weight ratio alternative to copper in fabricating higher Ø central strength member design, while conventional aramid materials are more appropriate for lower Ø design

WHERE GLASS FIBER PLAYS ITS ROLE

FRP CENTRAL STRENGTH MEMBER



- Acts as a stiffness member in the OFC assembly
- High speed pultruded, cured by either UV (40% market share[1]) or non-UV
- Usual GF content: 80-85%

TELESTRAND™ 2000 UV SERIES PRODUCT

- Single-end roving manufactured under tight control to meet demanding OFC fit-for-use
- Meets India's telecom standards
- Approved by leading central strength member manufacturers for India and export markets

IGFR -IMPREGNATED GLASS FIBER REINFORCEMENT

- Used as peripheral strength member
- Chemically coated, cured glass fiber
- Currently made in India using inline process
- Typically coupled along with UV/non-UV central strength member

TELESTRAND™ 3000 PRODUCT

- Ready to use, made with Owens Corning's inline technology
- "Made in India" for India market
- Certification by Indian telecom authority expected in Q1-2015

[1]Expected growth of India telecom composite market by 2017 – Source: Owens Corning estimate, 2014

TELESTRAND™ GLASS REINFORCEMENTS: A PLATFORM OF SOLUTIONS

Made with Advantex® E-CR glass helping to provide water resistance

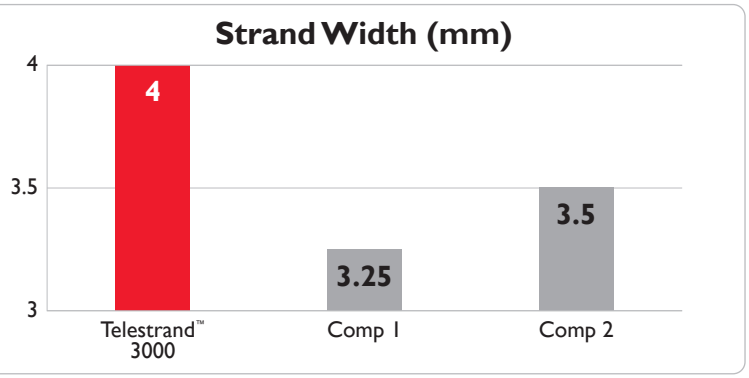
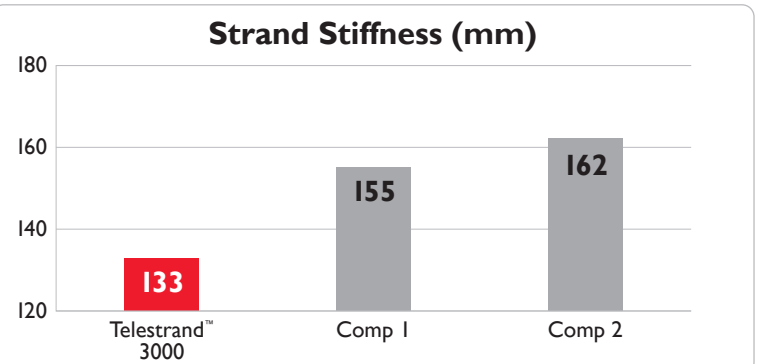
TELESTRAND™ 2000 UV SERIES ROVING

FOR UV-CURED PULTRUSION OF CENTRAL STRENGTH MEMBER

	2000 UV PRODUCT	COMPETITOR PROD.
HIGH-SPEED PROCESSING ▪ Strand integrity – LOI control ▪ Minimized fuzz ▪ Fast impregnation	Tighter LOI % Fuzz < 0.002 gm/lb of product	Wider LOI % Fuzz < 0.0100 gm/lb of product
HIGH PRODUCTIVITY ▪ High bobbin weight, no splicing needed ▪ Glass fiber length matching cable length ▪ Reduced waste and downtime	32kg*	17-22kg*

TELESTRAND™ 3000 IMPREGNATED GLASS FIBER

FOR HIGH QUALITY OFC ASSEMBLY WITH PERIPHERAL REINFORCEMENT

	3000 PRODUCT	COMPETITOR PROD.
PROCESSING PERFORMANCE ▪ Metered-length bobbins ▪ Cable manufacturing speed improvement ▪ Cable waste reduction	8.4, 10.5, 12.6 km* Length based	Weight based
GLASS STRAND QUALITY QUALITY COATING ▪ Enhanced rodent protection	Coated on filament in primary process	Coated on strand (grouped filaments) in secondary process
LARGE WIDTH ▪ Flat OFC bandwidth ▪ Ease of cable unwinding		
STIFFNESS ▪ More pliable ▪ Ease of cable laying		

TELESTRAND™ 4000 UV
NEXT GENERATION PRODUCT TO COME

Data source: * range values. Owens Corning internal test, Taloja lab., 2014

TeleStrand™ Glass Reinforcements

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WHY CHOOSE OWENS CORNING?

Globally available products manufactured in multiple facilities providing unrivaled supply redundancy.

The map opposite shows plants manufacturing Type 30® single-end roving.

- Amarillo, TX, USA
- Doudian, China
- Gous, Russia
- Kimchon, Korea
- L'Ardoise, France
- Mexico City, Mexico
- Rio Claro, Brazil
- Taloja, India
- Thimmapur, India
- Yuhang, China

Local technical support combined with global account coordination provides customers with outstanding response times and vital market intelligence

Broad range of glass fiber products offers customers more specialized combinations of polymer/resin matrix and reinforcement options

Inventor of Type 30® Single-End Roving with a long history of introducing innovative, robust products that meet stringent performance and quality requirements throughout the value chain

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